

I. *Claim Objections*

The Office objects to claims 1-7 for reciting a mutation at residue V93 of SEQ ID NO:89 or "a corresponding residue in an amino acid sequence selected from one of the other sequences of SEQ ID NOs. 83-108" (emphasis added herein by Applicants). The Office asserts that the claim language includes recitation of V93 of SEQ ID NO:89 twice. (Final Office Action at page 3.) Applicants submit that the basis for this rejection is incorrect, as the claims clearly indicate that the mutation corresponding to V93 of SEQ ID NO:89 is in an amino acid sequence from one of the other sequences of SEQ ID NOs. 83-108. Therefore, the interpretation of the claim by the Office is incorrect, and the claims do not recite V93 of SEQ ID NO:89 twice. Applicants request that the Office withdraw this objection.

The Office further objects to claims 1-10 and 12-26 [*sic*, 12-21] for including non-elected subject matter. (Final Office Action at page 3.) Applicants submit that the full scope of the claimed subject matter is allowable and the full scope of the claims should be examined. Therefore, Applicants request that this objection be held in abeyance.

II. *Rejection Under 35 U.S.C. § 112, second paragraph*

The Office rejects claims 1-10 and 12-21 under 35 U.S.C. § 112, second paragraph, as indefinite. (Final Office Action at pages 3-4.) Applicants traverse this rejection.

The Office asserts that the claims are indefinite because it is unclear to the Office what residues in the recited SEQ ID NOs correspond to V93 of SEQ ID NO:89. Applicants submit that the skilled artisan would immediately be apprised of the residues that correspond to V93 of SEQ ID NO:89 based not only upon the disclosure of the present application, but based on the

level of skill possessed by the skilled artisan at the time of filing of this application. Specifically, the present application, as originally filed, provides in Figure 7B, a comparison of six (6) polymerases, all of which have a valine at residue 93 of the sequence. There can be no doubt that the skilled artisan would understand that these residues correspond to V93 of SEQ ID NO:89. At the time of filing of this application, those of skill in the art could also quickly manually align sequences that showed high levels of identity and that included conserved regions or residues. Furthermore, at the time of filing of this application, computer programs that provided sequence alignments were well known and widely used. Those of skill in the art would have known to perform a manual alignment of sequences or use alignment programs on other polymerases according to the claims to align the sequences and identify residues corresponding to V93 of SEQ ID NO:89. To assist the Office in understanding this concept, attached to this paper is a comparison/alignment of the sequences encompassed by the claims, showing the residues that correspond to V93 of SEQ ID NO:89.

In view of the level of skill in the art and the ease with which Applicants were able to prepare the attached sequence alignments, Applicants submit that the skilled artisan would understand what residues correspond to V93 of SEQ ID NO:89. Accordingly, Applicants request that the Office withdraw this rejection.

III. *Rejections Under 35 U.S.C. §112, first paragraph*

The Office rejects claims 1-10 and 12-26 [*sic*, 12-21] under 35 U.S.C. §112, first paragraph, as containing subject matter that was not described in such a way as to reasonably convey to those of skill in the art that Applicants were in possession of the claimed subject

matter at the time of filing of the application. (Final Office Action at pages 4-6.) The basis for the rejection is that SEQ ID NO:108 does not comprise a residue corresponding to V93 of SEQ ID NO:89, and thus the application does not reasonably convey to the skilled artisan that Applicants were in possession of the claimed invention at the time of filing of this application. Applicants traverse this rejection.

As can be seen from the attached sequence alignment, one of skill in the art would recognize that residue 141 of SEQ ID NO:108 corresponds to V93 of SEQ ID NO:89. This residue, along with numerous other residues involved in function of the aligned polymerases, is highly conserved among the sequences recited in the present claims. The sole basis for the rejection has thus been refuted, and the rejection is untenable. As such, Applicants request that the Office reconsider and withdraw the rejection of the claims as lacking adequate written description for the claimed invention as it relates to SEQ ID NO:108.

IV. *Conclusion*

Applicants believe that all of the issues raised in the Final Office Action have been addressed herein. As no amendments to the claims have been made, and all of Applicants' comments are directed to the issues raised in the Final Office Action, this paper does not raise any new issues that have not yet been considered. As such, this paper should be entered into the official file and a substantive response offered by the Office.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this paper, such extension is hereby respectfully requested. If there are any fees due that are due to obtain entry of this paper, please charge such fees to Deposit Account No. 19-0089.

Respectfully submitted,
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